Phytoplankton data from the southern Beaufort Sea

Nadia Pinkewycz and Stephen I.C. Hsiao

Arctic Biological Station
Department of Fisheries and Oceans
Ste-Anne-de-Bellevue, Québec, H9X 3R4

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by

Nadia Pinkewycz and Stephen I.C. Hsiao

Arctic Biological Station
Department of Fisheries and Oceans
555 St. Pierre Blvd.
Ste-Anne-de-Bellevue, Québec H9X 3R4

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ABSTRACT

Pinkewycz, Nadia and Stephen I.C. Hsiao 1987. Phytoplankton data from the southern Beaufort Sea. Can. Data Rep. Fish. Aquat. Sci. 637: iv + 25 p.

Water samples collected in the southern Beaufort Sea during the spring of 1975 were analyzed quantitatively for phytoplankton. Thirty-nine genera and 60 species were identified. The diatoms were represented by 42 species (9 centric and 33 pennate), the green algae by 5, the golden-yellow algae by 3, the euglenoids by 3, and the dinoflagellates by 7 species. The diatoms comprised the largest group in terms of numbers of species and cells.

Key words: phytoplankton, species composition, vertical distribution, abundance

RESUME

Pinkewycz, Nadia and Stephen I.C. Hsiao. 1987. Phytoplankton data from the southern Beaufort Sea. Can. Data Rep. Fish. Aquat. Sci. 637: iv + 25 p.

Le phytoplancton provenant d'échantillons d'eau ramassés au cours de l'été 1975 dans le sud de la mer de Beaufort a été analysé quantitativement. Trente-neuf genres et soixante espèces ont été identifiés. Les diatomées étaient composées de 42 espèces (9 centriques et 33 pennées), les algues vertes de 5, les chrysophycées de 3, les euglénoïdes de 3, et les dinoflagellées de 7 espèces. Les diatomées formaient le plus grand groupe en terme de nombre d'espèces et de cellules.

Mots clés: Phytoplancton, composition d'espèces, distribution verticales, abondance

INTRODUCTION

The Canadian portion of the continental shelf of the Beaufort Sea has been opened to exploratory drilling for oil and gas. A major impact on the environment would result from oil and gas discharged into the sea in the event of an underwater well blowout and/or a spill during transport. Such events would affect the primary production of phytoplankton, the basic food supporting higher animals. Species are used as indicators of water masses and are characteristic of the prevailing ecological conditions. It is important to undertake studies to determine the species composition, abundance and vertical distribution of phytoplankton as they reflect regional or environmental conditions prior to full scale resource development.

MATERIALS AND METHODS

Water samples containing natural populations of phytoplankton were collected from the southern Beaufort Sea (Fig. 1) by oceanographers of the Beaufort Sea Project, Victoria, B.C., during the spring of 1975. They were preserved with formalin in 125-mL Boston round polyethylene bottles. The samples were quantitatively analyzed for species composition and abundance (Foy and Hsiao, 1976). Species were identified with the aid of a Leitz phase-contrast compound microscope and cells were enumerated by the method of Hsiao (1979) using a Leitz inverted microscope.

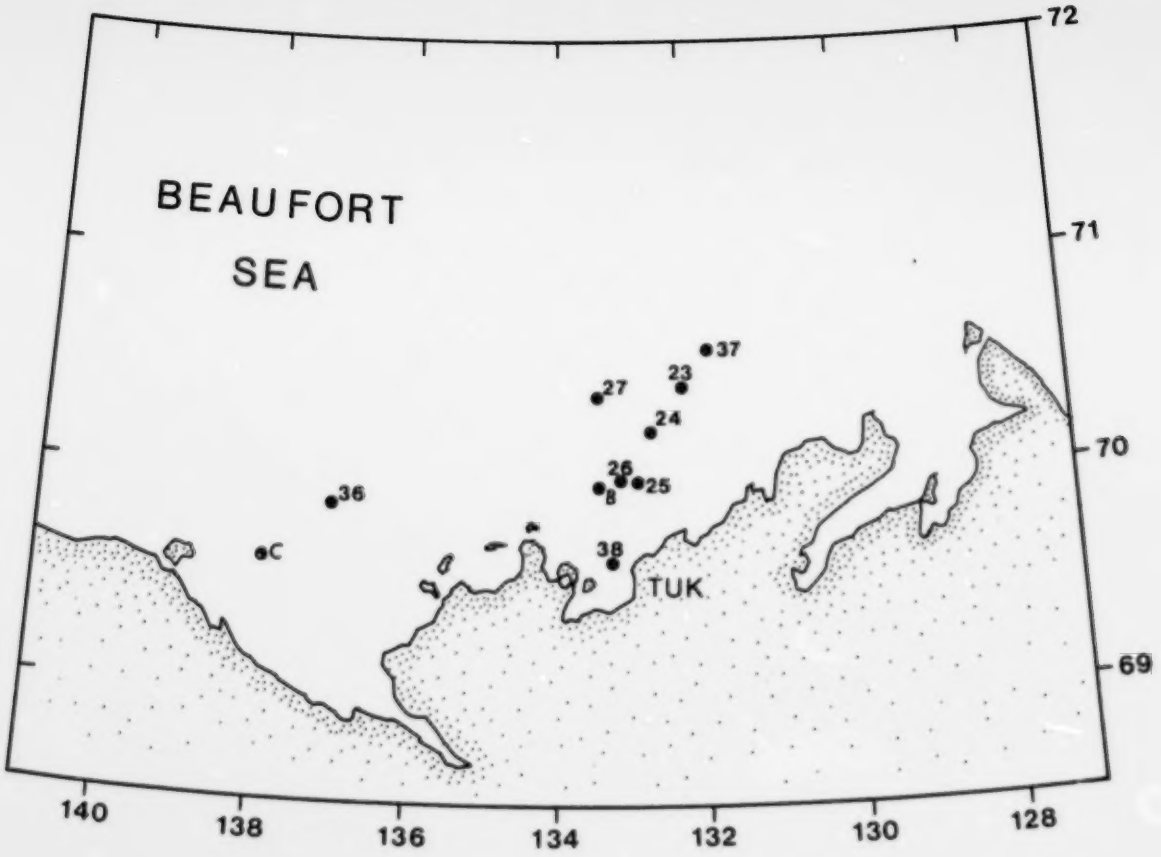

Fig. 1 Station locations in the southern Beaufort Sea (TUK = Tuktoyaktuk)

ACKNOWLEDGEMENTS

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Hsiao, S.I.C. 1979. Phytoplankton and sea ice microalgal data from Frobisher Bay, 1971 to 1978. Fisheries and Environment Canada, Fish. Mar. Ser. Data Rep. 155: 82 p.

Table 1. Phytoplankton taxa found in the southern Beaufort Sea

Bacillariophyta
- Centrales
  - *Biddulphia striata* Karsten
  - *Chaetoceros affins* Lauder
  - *C. borealis* J.W. Bailey
  - *C. decipiens* Cleve
  - *C. furcellatus* J.W. Bailey
  - *C. lauderi* Ralfs
  - *C. Wighami* Brightwell
  - *Cyclotella striata* (Kützing) Grunow
  - *Eucampia* Ehrenberg
  - *Thalassiosira decipiens* (Grunow) E. Joergensen
- Pennales
  - *Achnanthes taeniata* Grunow
  - *Amphiprora* Ehrenberg
  - *A. kjellmanii* Cleve
  - *Amphora laevis* Gregory
  - *A. terroris* Ehrenberg
  - *Cocconeis* Ehrenberg
  - *C. california* (Grunow) Grunow
  - *C. scutellum* Ehrenberg
  - *Cylindrotheca closterium* (Ehrenberg) Reimann et Lewin
  - *Cymbella affinis* Kützing
  - *Fragilaria* Lyngbye
  - *F. pinnata* Ehrenberg
  - *Gomphonema* Agardh
  - *G. exiguum* var. *pachycladum* (Brébisson) Cleve
  - *Grammatophora hamulifera* Kützing
  - *Gyrosigma fasciola* (Ehrenberg) Griffith et Henfrey
  - *Navicula* Bory
  - *N. cancellata* Donkin
  - *N. crassirostris* Grunow
  - *N. debilissima* Grunow
  - *N. directa* (Wm. Smith) Ralfs
  - *N. granii* (E. Joergensen) Gran
  - *N. peregrina* (Ehrenberg) Kützing
  - *N. sigma* Ehrenberg
  - *N. transitans* Cleve

Table 1 (cont'd)

N. transitans var. *derasa* (Grunow) Cleve
N. trigonocephala Cleve
Nitzschia Hassall
N. acicularis (Kützing) Wm. Smith
N. cylindrus (Grunow) Hasle
N. delicatissima Cleve
N. frigida Grunow
N. gelida Cleve et Grunow
N. grunowii Hasle
N. linearis (Agardh) Wm. Smith
N. seriata Cleve
N. tergestina (Kützing) Ralfs
Pinnularia Ehrenberg
Pleurosigma Wm. Smith
P. longum Cleve
Stauroneis quadripedis (Cleve-Euler) Hendey

Chlorophyta
Ankistrodesmus Corda
A. Falcatus (Corda) Ralfs
Carteria vectensis Conrad et Kufferath
Chlamydomonas Ehrenberg
C. ballenyana Kol et Flint
C. pulsatilla Wohlenweber
Pyramimonas octocilata Carter

Chrysophyta
Calyptrosphaera oblonga Lohmann
Dinobryon Ehrenberg
Mallomonas Perty
Phaeocystis pouchetii (Hariot) Lagerheim
Salpingoeca natans Grontved

Cyanophyta
Lyngbya Agardh
Spirulina Turpin

Table 1 (con'td)

Euglenophyta
- Euglena Ehrenberg
- E. acus Ehrenberg
- E. proxima Dangeard
- E. schmitzii Gojdics

Pyrrophyta
- Goniaulax Diesing
- G. catenata Kofoid
- G. scrippsae Kofoid
- G. triacantha Joergensen
- Gymnodinium Stein
- Gyrodinium spirale (Bergh) Kofoid et Swezy
- Oxytoxum stein
- Peridinium Ehrenberg
- P. charcotii Balech
- P. minusculum Pavillard
- Prorocentrum Ehrenberg
- Protoperidinium diabolum (Cleve) Balech

Table 2. Abundance and vertical distribution of phytoplankton species in the southern Beaufort Sea at station B, April 27, 1975

Sample depth (m)	**0**	**3**	**5**	**7**	**10**	**15**	**20**
Total phytoplankton (cells/litre)	**150**	**1,000**	**425**	**520**	**620**	**660**	**480**
Bacillariophyta	70	780	289	230	350	650	410
Centrales	60	680	272	180	310	620	350
Chaetoceros affinis	-	10	-	-	-	10	-
C. borealis	-	-	17	-	-	-	-
C. decipiens	20	30	-	-	-	10	-
C. furcellatus	30	620	255	170	300	580	350
Thalassiosira decipiens	10	20	-	10	10	20	-
Pennales	10	100	17	50	40	30	60
Amphiprora sp.	-	-	-	-	-	10	-
Cocconeis sp.	-	-	-	-	-	10	-
Cylindrotheca closterium	-	-	17	-	30	-	10
Navicula sp.	-	-	-	-	10	-	-
N. directa	-	-	-	-	-	-	10
Nitzschia acicularis	-	10	-	-	-	-	-
N. cylindrus	-	10	-	40	-	-	40
N. delicatissima	10	70	-	-	-	-	-
N. grunowii	-	10	-	-	-	-	-
N. linearis	-	-	-	-	-	10	-
Pinnularia sp.	-	-	-	10	-	10	-
Chlorophyta	60	160	119	250	80	-	60
Ankistrodesmus sp.	-	10	-	-	-	-	-
Carteria vectensis	10	-	-	-	-	-	-
Chlamydomonas ballenyana	50	130	119	240	60	-	60
C. pulsatilla	-	10	-	10	20	-	-
Pyramimonas octociliata	-	10	-	-	-	-	-
Euglenophyta	-	10	-	-	10	10	10
Euglena sp.	-	10	-	-	-	-	-
E. acus	-	-	-	-	10	10	-
E. proxima	-	-	-	-	-	-	10

Table 2. (Cont'd)

Sample depth (m)	0	3	5	7	10	15	20
Pyrrophyta	20	50	-	10	10	-	-
Goniaulax sp.	-	10	-	-	-	-	-
G. scrippsae	20	40	-	10	-	-	-
Peridinium minusculum	-	-	-	-	10	-	-
Unidentified algal spore	-	-	17	30	-	-	-

Table 3. Abundance and vertical distribution of phytoplankton species in the southern Beaufort Sea at station B, April 28, 1975

Sample depth (m)	**0**	**3**	**5**	**7**	**10**	**15**	**20**
Total phytoplankton (cells/litre)	**42**	**336**	**350**	**190**	**160**	**1,210**	**56**
Bacillariophyta	28	238	380	120	50	810	-
Centrales	-	56	100	50	40	300	-
Chaetoceros furcellatus	-	56	100	50	40	300	-
Pennales	28	182	280	70	10	510	-
Amphiprora	-	-	-	-	-	10	-
A. kjellmanii	28	-	-	-	-	-	-
Amphora sp.	-	-	-	20	-	-	-
A. laevis	-	28	-	-	-	-	-
A. terroris	-	-	-	10	-	-	-
Cocconeis californica	-	-	-	-	-	10	-
C. scutellum	-	-	10	-	-	-	-
Cylindrotheca closterium	-	-	10	-	-	-	-
Fragilaria sp.	-	-	10	-	-	-	-
F. pinnata	-	14	20	-	-	20	-
Gomphonema sp.	-	14	-	-	-	10	-
Grammatophora hamulifera	-	-	-	10	-	-	-
Navicula sp.	-	-	-	10	-	-	-
N. debilissima	-	-	-	-	-	10	-
N. directa	-	-	-	-	-	20	-
N. transitans	-	14	-	-	-	10	-
N. transitans var. *derasa*	-	-	10	-	-	-	-
Nitzschia sp.	-	-	-	-	-	10	-
N. acicularis	-	-	-	-	-	10	-
N. cylindrus	-	98	170	10	10	350	-
N. frigida	-	-	40	-	-	10	-
N. gelida	-	-	-	-	-	10	-
N. grunowii	-	-	-	10	-	-	-
N. linearis	-	14	10	-	-	20	-
N. tergestina	-	-	-	-	-	10	-

Table 3. (cont'd)

Sample depth (m)	0	3	5	7	10	15	20
Chlorophyta	-	28	50	50	90	70	-
Ankistrodesmus sp.	-	14	-	10	-	10	-
A. falcatus	-	-	-	-	20	-	-
Chlamydomonas sp.	-	-	-	-	-	10	-
C. ballenyana	-	-	30	40	50	10	-
C. pulsatilla	-	14	20	-	20	40	-
Chrysophyta	-	-	-	-	-	10	-
Salpingoeca natans	-	-	-	-	-	10	-
Cyanophyta	-	-	-	-	-	20	14
Spirulina sp.	-	-	-	-	-	-	14
Unidentified	-	-	-	-	-	20	-
Euglenophyta	-	14	10	10	-	-	-
Euglena sp.	-	14	10	10	-	-	-
Pyrrophyta	-	14	10	10	-	10	-
Goniaulax sp.	-	-	10	-	-	-	-
G. scrippsae	-	14	-	-	-	-	-
Gymnodinium sp.	-	-	-	10	-	-	-
Gyrodinium spirale	-	-	-	-	-	10	-
Unidentified algal spore	14	42	-	-	20	290	42

Table 4. Abundance and vertical distribution of phytoplankton species in the southern Beaufort Sea at station C, May 2, 1975

Sample depth (m)	**0**	**3**	**10**	**15**	**20**	**30**	**50**	**65**
Total phytoplankton (cells/litre)	**570**	**196**	**530**	**230**	**390**	**260**	**470**	**440**
Bacillariophyta	460	56	330	170	280	160	340	300
Centrales	250	14	310	130	270	80	320	250
Chaetoceros decipiens	10	-	-	10	20	20	20	10
C. furcellatus	240	14	300	120	240	50	290	240
Thalassiosira decipiens	-	-	10	-	10	10	10	-
Pennales	210	42	20	40	10	80	20	50
Cylindrotheca closterium	20	-	10	-	10	-	20	10
Gomphonema sp.	10	-	-	-	-	-	-	-
Navicula sp.	10	-	-	-	-	-	-	-
N. crassirostris	10	28	-	-	-	-	-	-
N. directa	-	-	-	-	-	-	-	10
N. transitans	-	-	-	-	-	-	-	10
N. transitans var. *derasa*	-	-	-	-	-	-	-	10
Nitzschia acicularis	10	-	-	-	-	-	-	-
N. cylindrus	30	-	-	20	-	40	-	-
N. delicatissima	80	-	-	-	-	10	-	-
N. grunowii	-	-	10	10	-	20	-	10
N. linearis	10	14	-	-	-	-	-	-
N. seriata	20	-	-	-	-	10	-	-
Pleurosigma sp.	10	-	-	-	-	-	-	-
Stauroneis quadripedis	-	-	-	10	-	-	-	-
Chlorophyta	30	70	190	60	40	90	30	140
Ankistrodesmus sp.	-	-	10	20	-	-	-	-
Carteria vectensis	-	-	10	-	-	-	-	-
Chlamydomonas ballenyana	30	70	140	40	40	50	30	90
C. pulsatilla	-	-	30	-	-	40	-	50

Table 4. (Cont'd)

Sample depth (m)	0	3	10	15	20	30	50	65
Chrysophyta	10	-	10	-	-	-	-	-
Dinobryon sp.	-	-	10	-	-	-	-	-
Phaeocystis pouchetii	10	-	-	-	-	-	-	-
Euglenophyta	-	-	-	-	-	-	30	-
Euglena sp.	-	-	-	-	-	-	30	-
Pyrrophyta	60	14	10	-	10	10	70	-
Goniaulax sp.	10	-	-	-	-	10	30	-
G. scrippsae	20	-	-	-	10	-	20	-
Gyrodinium spirale	10	14	10	-	-	-	20	-
Peridinium sp.	10	-	-	-	-	-	-	-
P. charcotii	10	-	-	-	-	-	-	-
Unidentified algal spore	10	56	-	-	60	-	-	-

Table 5. Abundance and vertical distribution of phytoplankton species in the southern Beaufort Sea at station 23, May 5, 1975

Sample depth (m)	0	10	20	30
Total phytoplankton (cells/litre)	8,640	11,980	7,890	7,440
Bacillariophyta	8,560	11,850	7,870	7,410
Centrales	990	770	330	310
Chaetoceros affinis	50	80	80	-
C. furcellatus	590	440	160	240
Thalassiosira decipiens	350	250	90	70
Pennales	7,570	11,080	7,540	7,100
Achnanthes taeniata	120	-	80	-
Amphiprora sp.	10	-	-	-
A. kjellmanii	-	-	10	-
Cylindrotheca closterium	-	30	20	20
Gomphonema exiguum var. *pachycladum*	-	10	10	-
Gyrosigma fasciola	-	10	-	-
Navicula sp.	10	-	-	10
N. directa	30	-	10	10
N. granii	1,080	140	1,010	-
N. transitans	10	-	-	-
N. transitans var. *derasa*	-	10	10	-
Nitzschia acicularis	10	10	10	-
N. cylindrus	3,160	3,600	1,850	2,870
N. delicatissima	200	660	620	590
N. frigida	-	30	100	50
N. grunowii	1,000	2,200	1,870	1,810
N. linearis	10	-	-	410
N. seriata	210	130	130	10
Pleurosigma sp.	10	-	10	-
Stauroneis quadripedis	1,710	4,250	1,800	1,320
Chlorophyta	60	100	10	20
Carteria vectensis	-	10	-	-
Chlamydomonas ballenyana	60	90	-	20
C. pulsatilla	-	-	10	-

Table 5. (cont'd)

Sample depth (m)	0	10	20	30
Euglenophyta	20	-	10	-
Euglena proxima	20	-	10	-
Pyrrophyta	-	30	-	10
Goniaulax scrippsae	-	10	-	-
Peridinium sp.	-	20	-	-
P. minusculum	-	-	-	10

Table 6. Abundance and vertical distribution of phytoplankton species in the southern Beaufort Sea at station 24, May 5, 1975

Sample depth (m)	0	10	30
Total phytoplankton (cells/litre)	2,850	930	1,670
Bacillariophyta	720	920	1,470
Centrales	660	410	390
Chaetoceros decipiens	-	-	10
C. furcellatus	620	370	370
Thalassiosira decipiens	40	40	10
Pennales	60	510	1,080
Cylindrotheca closterium	-	-	40
Navicula sp.	-	-	20
N. directa	20	-	-
N. granii	-	240	-
N. Peregrina	-	-	10
N. transitans	-	-	30
Nitzschia acicularis	10	-	20
N. cylindrus	10	240	40
N. grunowii	-	20	450
N. linearis	20	10	60
Stauroneis quadripedis	-	-	410
Chlorophyta	90	10	180
Chlamydomonas ballenyana	70	10	140
C. pulsatilla	20	-	40
Cyanophyta	2,040	-	-
Lyngbya sp.	2,040	-	-
Pyrrophyta	-	-	20
Goniaulax scrippsae	-	-	20

Table 7. Abundance and vertical distribution of phytoplankton species in the southern Beaufort Sea at station 24, May 9, 1975

Sample depth (m)	**0**	**10**	**20**	**30**
Total phytoplankton (cells/litre)	**670**	**1,290**	**660**	**630**
Bacillariophyta	520	1,120	510	560
Centrales	280	420	180	220
Chaetoceros affinis	-	-	-	10
C. decipiens	-	-	20	-
C. furcellatus	210	330	90	170
Thalassiosira decipiens	70	90	70	40
Pennales	240	700	330	340
Achnanthes taeniata	10	-	-	-
Cylindrotheca closterium	-	10	10	-
Gyrosigma fasciola	10	-	-	-
Navicula sp.	10	-	-	-
N. directa	20	-	-	-
N. granii	100	10	10	230
N. transitans	-	-	10	-
Nitzschia acicularis	10	-	-	10
N. cylindrus	40	460	270	80
N. delicatissima	30	10	-	10
N. grunowii	-	140	10	-
N. linearis	-	-	-	10
N. seriata	10	-	30	-
Stauroneis quadripedis	-	60	-	-
Chlorophyta	150	100	130	60
Ankistrodesmus sp.	-	-	20	-
Carteria vectensis	20	30	10	-
Chlamydomonas ballenyana	120	50	90	50
C. pulsatilla	10	20	10	10
Euglenophyta	-	10	-	-
Euglena schmitzii	-	10	-	-
Pyrrophyta	-	60	20	10
Goniaulax scrippsae	-	60	10	10
Prorocentrum sp.	-	-	10	-

Table 8. Abundance and vertical distribution of phytoplankton species in the southern Beaufort Sea at station 25, May 9, 1975

Sample depth (m)	**10**	**18**
Total phytoplankton (cells/litre)	**1,050**	**2,394**
Bacillariophyta	890	2,254
Centrales	500	490
Chaetoceros affinis	10	-
C. decipiens	-	14
C. furcellatus	460	420
C. wighami	-	28
Thalassiosira decipiens	30	28
Pennales	390	1,764
Cylindrotheca closterium	20	-
Navicula transitans	-	14
Nitzschia cylindrus	370	168
N. frigida	-	462
N. grunowii	-	966
N. linearis	-	154
Chlorophyta	110	98
Chlamydomonas ballenyana	100	98
C. pulsatilla	10	-
Chrysophyta	10	-
Mallomonas sp.	10	-
Euglenophyta	20	-
Euglena schmitzii	20	-
Pyrrophyta	20	42
Goniaulax scrippsae	10	14
Gyrodinium spirale	10	28

Table 9. Abundance and vertical distribution of phytoplankton species in the southern Beaufort Sea at station 26, May 9, 1975

Sample depth (m)	0	10	23
Total phytoplankton (cells/litre)	**234,135**	**658**	**460**
Bacillariophyta	184,041	616	360
Centrales	114,345	350	300
Chaetoceros decipiens	-	14	40
C. furcellatus	8,712	336	250
Thalassiosira decipiens	105,633	-	10
Pennales	69,696	266	60
Achnanthes taeniata	-	56	-
Cylindrotheca closterium	363	-	10
Navicula granii	1,452	-	-
Nitzschia cylindrus	51,183	14	20
N. delicatissima	12,705	42	10
N. grunowii	1,452	-	10
N. linearis	2,541	-	10
Stauroneis quadripedis	-	154	-
Chlorophyta	7,986	28	100
Ankistrodesmus sp.	-	-	10
Carteria vectensis	1,815	-	-
Chlamydomonas ballenyana	2,178	28	80
C. pulsatilla	3,993	-	10
Chrysophyta	363	-	-
Calyptrosphaera oblonga	363	-	-
Euglenophyta	7,260	-	-
Euglena acus	363	-	-
E. proxima	6,897	-	-
Pyrrophyta	34,485	14	-
Goniaulax catenata	31,218	-	-
G. scrippsae	1,452	-	-
G. triacantha	1,452	-	-
Gyrodinium spirale	1 363	-	-
Peridinium sp.	-	14	-

Table 10. Abundance and vertical distribution of phytoplankton species in the southern Beaufort Sea at station 27, May 9, 1975

Sample depth (m)	**0**	**10**	**20**	**30**
Total phytoplankton (cells/litre)	**10,750**	**15,340**	**7,990**	**3,690**
Bacillariophyta	10,670	15,160	7,900	3,590
Centrales	680	980	890	230
Biddulphia striata	10	-	10	-
Chaetoceros affinis	110	100	-	-
C. decipiens	-	20	-	60
C. furcellatus	290	840	500	100
C. lauderi	40	-	-	-
Eucampia sp.	30	20	-	-
Thalassiosira decipiens	200	-	380	70
Pennales	9,990	14,180	7,010	3,360
Cylindrotheca closterium	30	10	-	-
Gomphonema sp.	-	10	-	10
G. exiguum var. *pachycladum*	10	-	-	-
Gyrosigma fasciola	10	-	-	-
Navicula sp.	50	10	-	-
N. crassirostris	-	-	20	-
N. debilissima	-	-	-	10
N. directa	-	-	20	-
N. granii	2,600	2,880	2,090	860
N. peregrina	20	-	-	10
N. sigma	-	-	10	-
N. transitans	20	40	10	-
N. transitans var. *derasa*	10	-	20	40
Nitzschia acicularis	-	20	-	10
N. cylindrus	5,360	6,230	1,690	980
N. delicatissima	110	280	20	10
N. grunowii	10	1,910	270	850
N. linearis	730	30	240	120
N. seriata	110	190	1,690	20
Pleurosigma sp.	30	20	-	-
P. longum	-	10	30	-
Stauroneis quadripedis	890	2,540	900	440

Table 10. (Cont'd)

Sample depth (m)	0	10	20	30
Chlorophyta	60	120	70	60
Ankistrodesmus sp.	10	10	10	20
Chlamydomonas ballenyana	10	50	20	30
C. pulsatilla	40	50	40	10
Pyramimonas octociliata	-	10	-	-
Euglenophyta	10	30	-	-
Euglena proxima	10	30	-	-
Pyrrophyta	10	30	20	40
Goniaulax catenata	-	20	-	-
G. scrippsae	-	-	20	20
Gymnodinium sp.	-	10	-	-
Peridinium sp.	10	-	-	-
Protoperidinium diabolum	-	-	-	20

Table 11. Abundance and vertical distribution of phytoplankton species in the southern Beaufort Sea at station 36, May 10, 1975

Sample depth (m)	**0**	**5**	**10**	**20**	**30**
Total phytoplankton (cells/litre)	**171,336**	**8,350**	**3,070**	**15,880**	**1,498**
Bacillariophyta	163,713	8,160	2,950	15,480	1,260
Centrales	22,506	240	80	1,280	1,162
Chaetoceros affinis	-	40	-	-	-
C. decipiens	726	-	-	10	70
C. furcellatus	5,808	170	80	590	1,050
C. lauderi	-	-	-	50	-
Eucampia sp.	-	-	-	-	14
Thalassiosira decipiens	15,972	30	-	630	28
Pennales	141,207	7,920	2,870	14,200	98
Amphiprora sp.	-	-	-	10	-
Cylindrotheca closterium	-	10	-	-	-
Navicula sp.	-	-	-	30	-
N. cancellata	-	-	-	10	-
N. crassirostris	363	-	-	-	-
N. debilissima	363	-	-	20	-
N. directa	363	-	10	-	-
N. granii	14,883	5,240	1,190	3,860	-
N. peregrina	-	-	-	10	-
N. transitans	363	-	-	10	14
N. trigonocephala	-	-	-	10	-
Nitzschia acicularis	-	-	-	10	-
N. cylindrus	99,462	680	1,020	9,070	84
N. delicatissima	1,452	-	-	20	-
N. frigida	5,808	320	-	140	-
N. grunowii	10,164	910	510	670	-
N. linearis	7,260	10	-	300	-
N. seriata	-	10	-	-	-
Pleurosigma sp.	726	-	-	30	-
Stauroneis quadripedis	-	740	140	-	-
Chlorophyta	2,541	150	90	40	210
Ankistrodesmus sp.	-	-	30	-	-
Chlamydomonas ballenyana	363	140	30	-	182
C. pulsatilla	2,178	10	30	40	28

Table 11. (cont'd)

Sample depth (m)	0	5	10	20	30
Euglenophyta	3,630	10	10	250	-
Euglena sp.	3,630	-	-	250	-
E. schmitzii	-	10	10	-	-
Pyrrophyta	1,452	30	20	110	28
Goniaulax sp.	-	-	-	10	-
G. catenata	1,089	-	-	-	-
G. scrippsae	363	10	20	70	-
Oxytoxum sp.	-	-	-	10	-
Peridinium sp.	-	-	-	10	14
P. charcotii	-	-	-	10	-
Protoperidinium diabolum	-	20	-	-	14

Table 12. Abundance and vertical distribution of phytoplankton species in the southern Beaufort Sea at station 37, May 5, 1975

Sample depth (m)	0	10	20	30
Total phytoplankton (cells/litre)	**10,530**	**6,210**	**17,150**	**9,404**
Bacillariophyta	10,380	6,050	17,052	9,354
Centrales	780	290	364	376
Chaetoceros affinis	140	20	-	-
C. decipiens	50	-	14	-
C. furcellatus	510	230	112	313
Thalassiosira decipiens	80	40	238	63
Pennales	9,600	5,760	16,688	8,978
Achnanthes taeniata	-	-	-	100
Amphiprora sp.	10	-	-	-
Cylindrotheca closterium	-	20	28	25
Cymbella affinis	-	-	-	25
Gomphonema exiguum var. *pachycladum*	10	-	-	-
Navicula sp.	20	-	14	-
N directa	10	-	-	-
N. granii	50	-	658	125
N. peregrina	10	-	-	38
N. transitans	10	20	14	25
N. transitans var. *derasa*	30	-	-	-
Nitzschia acicularis	-	10	-	-
N. cylindrus	3,090	640	6,440	2,975
N. delicatissima	260	180	294	275
N. frigida	-	-	1,134	500
N. grunowii	1,410	1,200	2,660	2,538
N. linearis	-	-	56	88
N. seriata	110	20	154	138
Pleurosigma sp.	-	10	-	13
Stauroneis quadripedis	4,580	3,660	5,236	2,113
Chlorophyta	110	150	84	50
Ankistrodesmus sp.	10	-	-	-
Carteria vectensis	20	10	14	-
Chlamydomonas sp.	-	-	14	-
C. ballenyana	70	120	28	50
C. pulsatilla	10	20	28	-

Table 12. (Cont'd)

Sample depth (m)	0	10	20	30
Euglenophyta	20	10	-	-
Euglena proxima	20	-	-	-
E. schmitzii	-	10	-	-
Pyrrophyta	20	-	14	-
Goniaulax sp.	10	-	14	-
G. scrippsae	10	-	-	-

Table 13. Abundance and vertical distribution of phytoplankton species in the southern Beaufort Sea at station 38, May 9, 1975

Sample depth (m)	**0**
Total phytoplankton (cells/litre)	**330**
Bacillariophyta	280
Centrales	150
Chaetoceros furcellatus	110
Cyclotella striata	10
Thalassiosira decipiens	30
Pennales	130
Nitzschia acicularis	10
N. cylindrus	60
N. delicatissima	30
N. seriata	30
Chlorophyta	30
Chlamydomonas ballenyana	30
Pyrrophyta	20
Gyrodinium spirale	20